AIR-INSULATED TESLA COILS.

A Tesla coil suitable for use with spark coils of from 2 to 6″ spark, with air as an insulator, may be made as follows: On a paper tube 3″ in diameter and 11″ long, wind 1 layer of No. 31 B. & S. enamel wire.

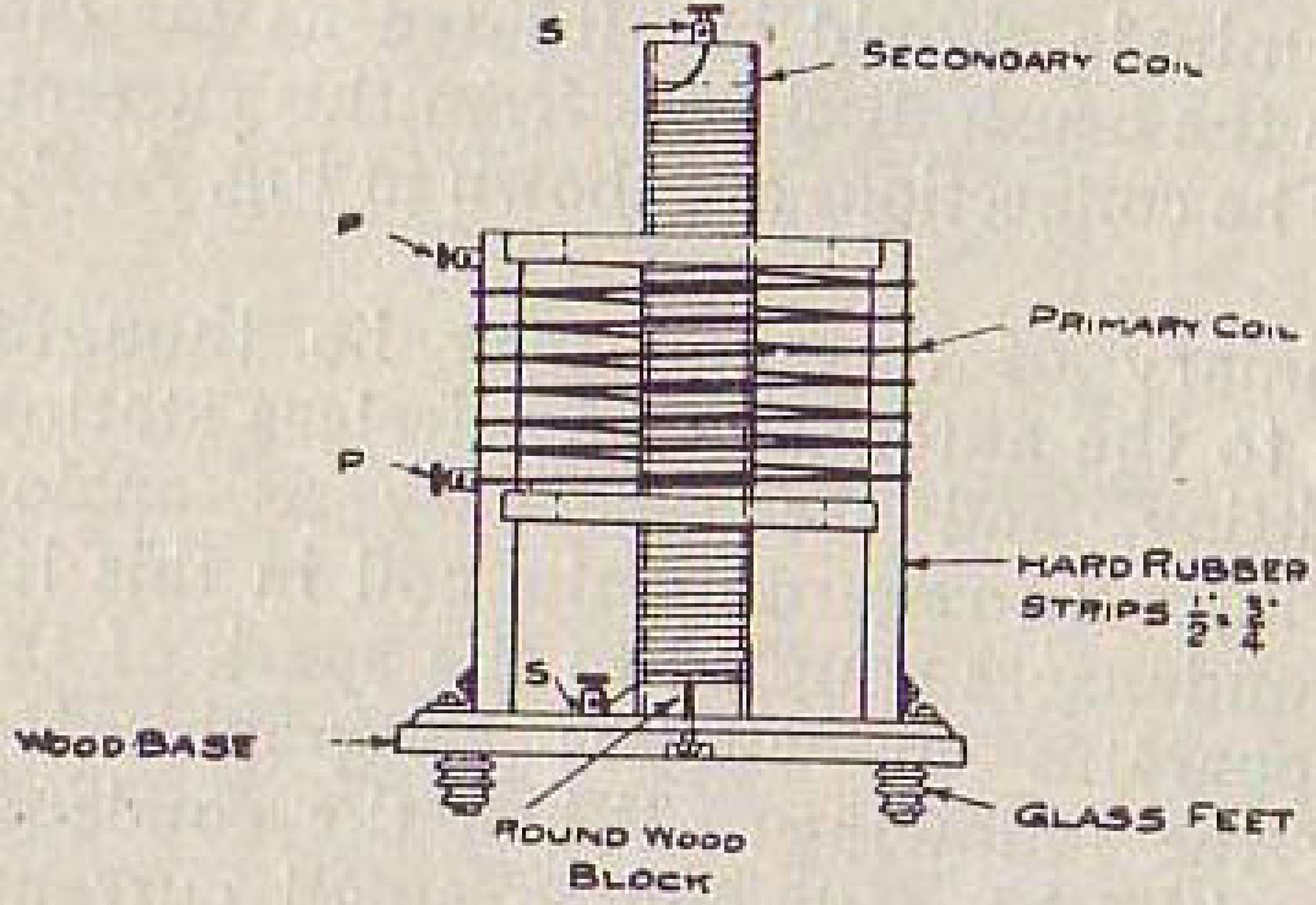

Figure 1

This is the secondary and is supported as shown in Fig. 1.

The primary is formed of 20 turns No. 14 B. & S. solid or better stranded copper wire, rubber covered, wound on a paper or hard rubber tube 6″ in diameter and 6″ long. This coil if properly used, will give 3″ high frequency sparks, between its secondary terminals, when operated by a good 2″ spark coil, and a glass plate condenser made of 12 plates, 8″x10″ coated

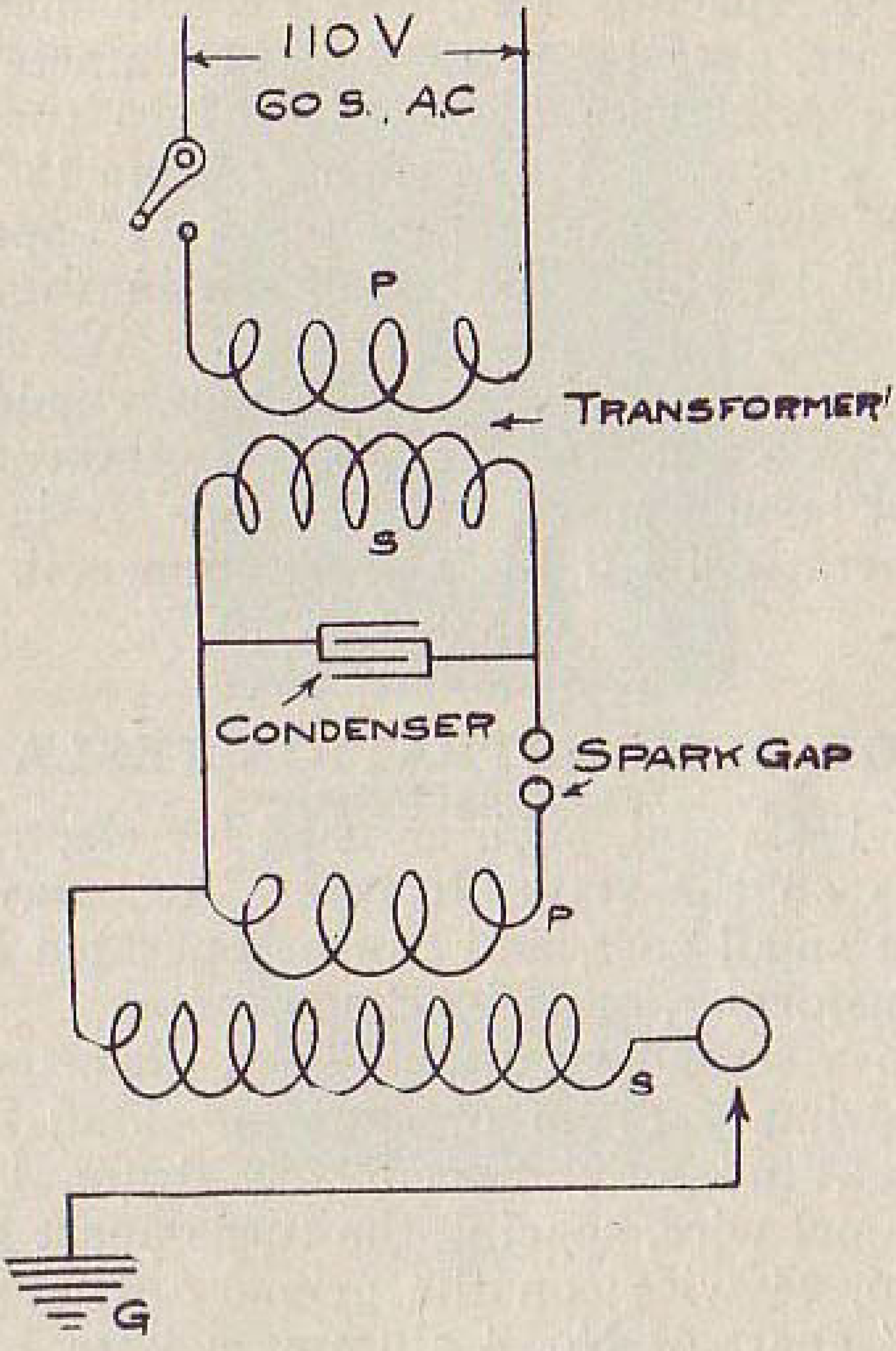

Figure 2

with tinfoil on both sides 6″x8″. The spark gap must be adjusted very carefully also use a different number of condenser plates until the maximum efficiency is attained.

To make an Oudin resonator out of this coil, drop the primary coil down to the bottom of the secondary, and wind secondary with wire 1 or 2 sizes smaller. Connect the bottom of the primary with the bottom of the secondary, as shown in Fig. 2.

A Tesla coil which may be run by a ½ K. W. transformer, can be constructed along the following lines. Make the secondary of 1 layer of No. 27 B. & S. enamel wire, spacing the turns the thickness of No. 27 wire apart, on a paper tube 6″ in diameter and 20″ long. The primary may consist of 15 turns No. 6 aluminum wire wound on a tube or drum 12″ in diameter and 8″ long, spacing the turns ½″ apart. The coils should be supported as shown in Fig. 1. The condenser may be the regular ½ K. W. condenser, made of glass plates. The spark gap, condenser and primary clips should be adjusted simultaneously until the desired results are obtained. This Tesla coil may also be operated by a 12-14″ Induction coil.

A LARGE DEMONSTRATION TESLA COIL.

A large Tesla coil, such as used for electrical demonstrations on the stage, lectures, etc., may be constructed at small cost, and can be operated by a ¾-1 K. W. transformer, or 18″-20″ spark coil.

Make up a secondary drum 11″ in diameter and 45″ long. A primary drum or cage 10″ long by 22″ in diameter. Wind on the secondary drum, 1 layer of No. 25 enamel wire, spacing the turns apart the thickness of No. 24 wire; on the primary wind 10 turns, spaced ¾″ apart of No. 4 aluminum wire. This coil will give sparks 3 feet long, when properly operated.

EXPERIMENTING WITH THE TESLA COIL.

By H. GERNSBACK.

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